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09/994,779	11/28/2001	Oscar P. Pinto	219.40421X00	8352

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EXAMINER

CHANNAVAJALA, SRIRAMA T

ART UNIT	PAPER NUMBER
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2166

DATE MAILED: 05/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/994,779

Applicant(s)

PINTO ET AL.

Examiner

Srirama Channavajjala

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 28 February 2005.
- 2a) This action is **FINAL**.
- 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-8 and 10-23 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-8, 10-23 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/7/05.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____

DETAILED ACTION

Response to Amendment

1. Examiner acknowledges applicant's amendment filed on 2/28/2005.
2. Claims 5,8,10,15,17-18,23 have been amended [2/28/2005].
3. Claim 9 has been cancelled [2/28/2005].
4. In view of applicant's amendment to claims 7,15,23, the objection set forth in the previous office action is hereby withdrawn.
5. In view of "Amendment to the Abstract", submitted on 2/28/2004, the objection to the Abstract set forth in the previous office action is hereby withdrawn.

Drawings

6. The drawings filed on 11/28/2001 are objected to by the Draftsperson under 37 CFR 1.84 or 1.152, [see PTO-948], formal drawings are required in response to this office action. These drawings are acceptable for examination purpose only.

Information Disclosure Statement

7. The information disclosure statement (IDS) submitted on 3/7/2005, is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner, a copy of PTO-1449 is hereby enclosed with this office action.

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Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

8. *Claims 1-4, 17- 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Buhrgard et al., [hereafter. Buhrgard], US Patent No. 6671255*

9. As to Claim 1, 17, Buhrgard teaches a system which including 'managing an incoming data message at a host node in a switched fabric' [see Abstract]; 'determining whether if there are pre-post buffers specified for a client upon registration by the client' [col 4, line 21-38], 'if there are pre-post receive buffers specified for the client, posting client specified receive buffers at management queue pairs (QPs) to receive the incoming data message' [col 5, line 16-31,

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fig 3], Buhrgard specifically teaches buffer structure where each level there are buffer groups and designated with specific numbers as detailed in col 5, line 21-31 that corresponds to buffers at management queue pairs; 'if no pre-post receive buffers are specified for the client, posting a default number of receive buffers at the management queue pairs (QPs) to receive the incoming data message' [col 5, line 32-42].

10. As to Claim 2, 18, Buhrgard disclosed 'continuing to monitor and receive incoming data messages, and determining if the number of posted receive buffers falls below a threshold value' [col 4, line 45-49, col 5, line 8-16], Buhrgard specifically teaches a threshold value is defined to compare the buffer levels, particularly lower threshold values as detailed in col 5, line 12-16; 'if the number of posted receive buffers falls below the threshold value, posting additional receive buffers to receive the incoming data messages' [col 6, line 63-67, col 7, line 1-7].

11. As to Claim 3, 19, Buhrgard disclosed 'if the number of posted receive buffers exceeds an upper threshold value, removing a designated number of receive buffers posted to receive the additional incoming data messages so as to conserve resources' [col 9, line 48-62].

12. As to Claim 4, 20, Buhrgard disclosed 'monitoring a receive buffer usage of the client based on the number of incoming data messages received for the

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client are received' [col 4, line 50-61], 'increasing the number of receive buffers posted on behalf of the client to receive the number of incoming data messages intended for the client' [col 5, line 32-42].

13. Claims 8-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Craddock et al., [hereafter Craddock], US Pub No. 2003/0005039

14. As to Claim 8, Craddock teaches a system which including 'at least one channel adapter (CA) including one or more ports to support data transfers via subnet [see fig 1, fig 6, page 3, col 1, 0033, col 2, 0036], channel adapters corresponds to Craddock's fig 1 where channel adapters take the form of host channel adapters as detailed in page 3, col 2, 0036; 'an access module including a general services agent (GSA) and a subnet management agent (SMA) [see fig 1] to enable one or more entities to send and receive data messages of management services on the host system via the subnet [page 3, col 2, 0036-0037], including to determine an optimal number of receive buffers to post at management queue pairs (QPs) so as to receive an incoming data message from the subnet' [see fig 3, page 3, col 2, 0038-0039], Craddock specifically teaches host channel adapter supports thousands of queue pairs [see page 4, col 1 0039];

'wherein one of the General Services Agent (GSA) and the Subnet Management Agent (SMA) is configured to' [fig 1, fig 6, page 5, col 2, 0058, especially line 12-26], Craddock directed to InfiniBand Subnet Management,

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more specifically InfiniBand Subnet Management having port[s] for switching where subnet manager associated with subnet that assigns to specific ports as detailed in fig 6, elements 612,648,672, and 652]

'determine whether there are pre-post receive buffers specified for a client upon registration by the client' [page 4, col 2, 0051]; Craddock suggests user mode process transfers data through queue pairs directly from where the buffer resides in memory as detailed in page 4, col 2, 0051, line 1-3;

'if there are pre-post receive buffers specified for the client, post client specified receive buffers at the management queue pairs (QPs) to receive the incoming data message' [page 3, col 2, 0038]; Craddock specifically teaches host channel adapter that including queue pairs for example as detailed in fig 3, element 302-310, also it is noted that Craddock suggests memory translation and protection (MTP) that translates virtual addresses to physical addresses and provides direct memory access as detailed in page 4, 10038;

'if no pre-post receive buffers are specified for the client, post a default number of receive buffers at the management queue pairs (QPs) to receive the incoming data message' [page 4, col 1, 0043]; Craddock specifically teaches verbs provides a mechanism for retrieving completed work from the completion queue as detailed in fig 4, therefore, completion queue elements is part of management queue process.

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15. As to Claim 10, Craddock teaches a system which including 'monitor and receive incoming data messages, and determine if the number of posted receive buffers falls below a threshold value' [page 4, col 1, 0044]; 'if the number of posted receive buffers falls below the threshold value, post additional receive buffers to receive the incoming data messages' [page 4, col 2, 0047].

16. As to Claim 11, Craddock teaches 'wherein one of the general services agent (GSA) and the subnet management agent (SMA) is further configured to remove a designated number of receive buffers posted to receive the additional incoming data messages so as to conserve resources, if the number of posted receive buffers exceeds an upper threshold value' [page 4, col 2, 0048-0049].

17. As to Claim 12, Craddock teaches a system which including 'general service agent and the subnet management is further configured to monitor a receive buffer usage of the client based on the number of incoming data messages received for the client are received, and increases the number of receive buffers posted on behalf of the client to receive the number of incoming data messages intended for the client' [see page 4, col 2, 0048-0049, page 5, col 1, 0056].

18. As to Claim 13, Craddock teaches a system 'the default value of number of receive buffers is set by a fabric administrator based on operating conditions of the subnet, including a subnet size and a traffic pattern' [page 6, col 2, 0074].

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19. As to Claim 14, Craddock teaches a system which including 'threshold value is set by a fabric administrator based on operating conditions of the subnet, including a number of local clients registered at the host system in the subnet' [page 7, col 1, 0075].

20. As to Claim 15, Craddock teaches 'management queue pairs (QP) [see page 3, col 2, 0038] including QPO managed by an agent of subnet services, known as subnet management agent (SMA) [see page 3, col 2, 0038], subnet management agent corresponds to Craddock's subnet manager agent (SMA), fig 3, element 336; 'QP1 managed by the agent of general services known as General Services Agent (GSA) in accordance with the "InfiniBand architecture specification" [page 6, col 2, 0070].

21. As to Claim 16, Craddock teaches a system which including 'management services include a subnet administration service which provides data path information to reach fabric-attached devices [see fig 1, fig 6]; 'a communication management service which provides the means to set up and manage communications between queue pairs (QP)' [page 3, col 2, 0038]; 'a performance management service which specifies a set of facilities for examining various performance characteristics of the subnet' [page 3, col 2, 0036]; 'a device management service which specifies the means for determining the type and location of various types of fabric-attached devices' [page 3, col 2, 0037]; 'a device configuration service which assigns fabric-attached devices to the host

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system' [see fig 1, fig 3]; 'a baseboard management service which allows management of the fabric-attached devices and a network protocol service which specifies mechanisms to support transport of simple network management protocol "SNMP" operations through subnet' [page 3, col 1, 0031].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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22. Claims 5-7, 21-23, rejected under 35 U.S.C. 103(a) as being unpatentable over *Buhrgard et al.*, [hereafter. *Buhrgard*], US Patent No. 6671255 as applied to claims 1, above, and further in view of *Craddock et al.*, [hereafter *Craddock*], US Pub No.2003/0005039

23. As to Claim 5, 21, *Buhrgard* teaches 'default value of number of receive number of buffers in a packet switch [see col 5, line 32-42]. It is however, noted that *Buhrgard* does not specifically teach 'operating conditions of the switched fabric including a fabric size and a traffic pattern'. On the other hand, *Craddock* teaches 'operating conditions of the switched fabric including a fabric size and a traffic pattern' [page 2, col 1, 0023, fig 1], *Craddock* specifically teaches switched communications fabric in fig 1, element 100, further switched fabric supports multiple ports and paths that increases bandwidth for data transfer that corresponds to fabric size and traffic pattern.

It would have been obvious to one of the ordinary skill in the art at the time of applicant's invention to incorporate the teachings of *Craddock et al.*, into packet switched network of *Buhrgard et al.*, because both *Buhrgard* and *Craddock* are directed to packet switched networks, more specifically *Buhrgard* is directed to packet switched exchange using network and organizing traffic [see fig 1, abstract], while *Craddock* is directed to distributed computing system having nodes, switches, routers and links for interconnecting packets and organizing traffic [see Abstract, fig 7] and are from same field of endeavor.

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One of the ordinary skill in the art at the time of applicant's invention would have been motivated to incorporate the teachings of Craddock into packet switched network of Buhragard because that would have allowed users of Buhragard to not only control network operating conditions, packet size(s) but also effectively organizing traffic pattern by means of detecting specific switch associated with ports, assigning unique identifier and like as suggested by Craddock [see page 1, col 2, 0008].

24. As to Claim 6, 22, Craddock teaches 'threshold value is set by a fabric administrator based on operating conditions of the switched fabric, including a number of local clients registered at the host node in the switched fabric [page 2, col 1, 0023].

25. As to Claim 7, 23 Craddock teaches 'management queue pairs (QP) [see page 3, col 2, 0038] including QPO managed by an agent of subnet services, known as subnet management agent (SMA) [see page 3, col 2, 0038], subnet management agent corresponds to Craddock's subnet manager agent (SMA), fig 3, element 336; 'QP1 managed by the agent of general services known as General Services Agent (GSA)" [page 6, col 2, 0070].

Response to Arguments

Applicant's arguments filed on 2/28/2005 with respect to claims 1-8,10-23 have been fully considered but they are not persuasive, for examiner's response, see discussion below:

In response to Applicant's amendment and remarks, concerning the 35 U.S.C. 102(e) rejection of claims 1-4,17- 20 as being clearly anticipated by Buhrgard et al., US Patent No. 6671255, examiner notes the following:

It is noted that Applicant's remarks at pages 10-13 of the response, are merely conclusory statements, without any support. Applicant is merely repeating the language of the claim, without addressing Examiner's particular interpretation of the reference, as presented in the previous Office action, and without specifying how the instant amendments address the issues raised by Examiner.

a) At page 11-12, claims 1-4,17-20, applicant argues that "Examiner do not disclose or suggest at lest the claimed determining whether there are pre-post receive buffers specified for the client, posting client specified receive buffers at the management queue pairs (QPs) to receive the incoming data message....."

As to the above argument [a], Firstly, Buhrgard et al. is directed to data flow control and switch method in the buffer unit, more specifically hierarchical

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structured buffers in which each buffer is arranged to receive data packages [col 2, line 51-54], secondly, Buhrgard directed to packet switched exchange for example ATM exchange having various service classes further, switched exchange provides the necessary switching functions to support communication between multiple message nodes using switch fabric to support communication between multiple nodes [see col 1, line 53-56, 60-67]; Thirdly, Buhrgard specifically teaches buffer structure where each level there are buffer groups and designated with specific numbers as detailed in col 5, line 21-31 that corresponds to buffers at management queue pairs.

b) At page 12-13, claims 8-16, applicant argues that "The applicants respectfully point out that the portions of the disclosure relied upon by the examiner do not disclose or suggest at least the claimed determining whether there are pre-post receive buffers specified for a client upon registration by the client, if there are pre-post receive buffers specified for a client....."

As to the above argument [b], Craddock et al is directed to supporting end node partitioning by vitalizing an InfiniBand channel and switch components, specifically InfiniBand components are assigned a local identifier during initialization [see page 1, col 1, 0002, 0005], Craddock also teaches various modules [fig 1, element 148,150,152..] and each port connects to a SAN subnet or multiple SAN subnets as detailed in fig 1, 100. It is noted that Craddock also teaches queue management that including queue elements as detailed in fig 4,

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elements 430-436, page 4, col 1, 0043. Craddock suggests user mode process transfers data through queue pairs directly from where the buffer resides in memory as detailed in page 4, col 2, 0051, line 1-3; Craddock specifically teaches verbs provides a mechanism for retrieving completed work from the completion queue as detailed in fig 4, therefore, completion queue elements is part of management queue process [page 4, col 1, 0043].

The dependent claims 5-7,21-23 are obvious over Buhrgard et al.
US Patent No. 6671255 in view of Craddock, US Pub.No. 2003/0005039.
Examiner applies above arguments to dependent claims

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THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Conclusion

The prior art made of record

- a. US Patent No. 6671255
- b. US Pub No. 2003/0005039

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Srirama Channavajjala whose telephone number is 571-272-4108. The examiner can normally be reached on Monday-Friday from 8:00 AM to 5:30 PM Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alam, Hosain, T, can be reached on (571) 272-3978. The fax phone numbers for the organization where the application or proceeding is assigned is 703/872-9306 Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free)

sc
Patent Examiner.
May 16, 2005.


SRIRAMA CHANNAVAJJALA
PRIMARY EXAMINER